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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention]This invention relates to a distributed processing mediating system and a method, and it is related with the distributed processing mediating system which performs agency for using for details more surplus throughput, such as a personal computer always connected to the wide area network.
[0002]
[Description of the Prior Art]Some systems which perform distributed processing using the computer which a volunteer provides, and perform huge computation efficiently on the Internet are tried. However, in such a system, the truster of a project needs to disclose the information about self contents of processing and organization for a third party. The cost which seeks a volunteer, the danger of an alteration of the data by human being with the bad faith pretending to be a volunteer, etc. must be taken into consideration. For a volunteer, even if it participates in a project, remuneration is not acquired but the program to execute may have an adverse effect on its computer environment. A volunteer's personal information may be revealed to a truster. The distributed processing project on [the above Reason to] a network has not escaped from the stage as a trial.
[0003]In recent years, the broader-based computer network represented by the Internet progresses, and the demand which always connects the computer of a home or a small-scale office (SOHO) to a network is increasing. From such a background, it is expected by each home and SOHO within several years that several [1 to] computers are always connected to a network.
[0004]In the near future, connection is always introduced, and when the throughput of a computer also becomes very large further, as for the always [almost all] connected computer, it will be embarrassed with the throughput. Although the computer is always started by the connectable state, the user does not always use the computer. For example, under sleeping and a meal etc. do not have little time for a computer not to process at all. If it sees from a worldwide viewpoint, it will become the situation ****(ed) by the ability of a huge number of computers to have capability.
[0005]It carries out by making many and unspecified computers on the Internet distribute large-scale computation now, and there are some projects which raise processing speed. For example, an extraterrestrial life object investigation project (at SETI, efficiency is raised by subdividing

and carrying out the distributed processing of a vast quantity of observational data of the entire celestial sphere obtained from a radio telescope.) In the decipherment contest of a certain cipher system, it performs by distributing calculation on the Internet, and there is also an example which decoded the key for a short period of time. The computer which processes is provided in such an example by the volunteer who got interested in a project.

[0006]Drawing 8 is a figure showing such a conventional distributed processing system. As for 10, in drawing 8, an Internet network and 30 are distributed processing capability providing terminals a distributed processing consignment terminal and 20. The distributed processing consignment terminal 10 entrusts distributed processing to the distributed processing capability providing terminal 30 (30a, 30b, 30c) via Internet network 20, and the distributed processing capability providing terminal 30 performs the entrusted distributed processing, and transmits the result to the distributed processing consignment terminal 10 via Internet network 20.

[0007]Drawing 9 is a figure showing the outline flow of the conventional distributed processing. In drawing 9, the distributed processing capability providing terminal 30 performs distributed processing capability providing terminal registration to the distributed processing consignment terminal 10 (Step S1000). Next, when it judges whether the distributed processing consignment terminal 10 had registration from the distributed processing capability providing terminal 30 (Step S2000) and there is registration, the distributed processing consignment terminal 10 requests distributed processing processing to the distributed processing capability providing terminal 30 (Step S2100). The distributed processing capability providing terminal 30 which received the distributed processing request performs distributed processing (Step S3000), and transmits the result to the distributed processing consignment terminal 10 (Step S3100). Next, the distributed processing consignment terminal 10 unifies the processing received from the distributed processing capability providing terminal 30 (Step S4000).

[0008]
[Problem to be solved by the invention]However, in a distributed processing system like drawing 8, there was evil [un-/ as follows] in the both sides of the distributed processing consignment terminal 10 and the distributed processing capability providing terminal 30. That is, in order to collect a volunteer, the distributed processing consignment terminal 10 needs to place a homepage on the Internet, and needs to carry out an international educational campaign. The distributed processing consignment terminal 10 has the danger of misusing the information provided for the danger that a processing result cannot be trusted, and processing, when a volunteer has bad faith. For example, it is also assumed that a volunteer uses the fake program which turns into a program which a truster provides and is cleared up. If the distributed processing consignment terminal 10 requests distributed processing at all, it needs to disclose the contents of processing of the program to execute, and a project truster's information to the distributed processing capability providing terminal 30. That is, a project truster's privacy is revealed to a volunteer.

[0009]On the other hand, the volunteer participating candidate needs to search what kind of project is looking for the participant on a network first. Even if it discovers one project fortunately, it is necessary to check about the purpose of the project, a truster's reliability, etc. A volunteer will take a risk of fault occurring to the computer to own, as a result of executing a program. For example, there is a danger of causing the situation which interferes with anticipated use by the malicious program, the program containing a virus and a bug, etc. When a volunteer participates in a project, he will inform a project truster of existence of him. There is a possibility that the personal information on a computer may be stolen depending on the program to execute.

In the situation where Electronic Commerce Technology Division gained popularity, since the high information on privacy comes to exist on a computer, it becomes a very high risk.

[0010]A place which this invention was made in view of above-mentioned SUBJECT, and is made into the purpose, Large-scale calculation is efficiently processed by distributed processing on a network, and it is in providing a distributed processing mediating system and a method of canceling each evil of the conventional distributed processing consignment terminal and a distributed processing capability providing terminal.

[0011]
[Means for solving problem]A distributed processing consignment terminal in which this invention entrusts distributed processing in order to attain the above-mentioned purpose, Having a distributed processing capability providing terminal in which information processing ability is left, and a distributed processing agency server which performs intermediation service via a network among these, said distributed processing agency server mediates surplus throughput which a distributed processing capability providing terminal provides to a distributed processing consignment terminal.

[0012]A distributed processing agency server of this invention holds anonymity between a distributed processing consignment terminal and a distributed processing capability providing terminal.

[0013]A distributed processing agency server of this invention holds confidentiality between a distributed processing consignment terminal and a distributed processing capability providing terminal.

[0014]A distributed processing capability providing terminal of this invention is characterized by being computers always connected to a wide area network, such as a personal computer and a game machine.

[0015]The distributed processing consignment terminal of this invention performs distributed processing using two or more distributed processing capability providing terminals.

[0016]The distributed processing consignment terminal of this invention adjusts the number of the processing distributed processing capability providing terminal used according to the state of a distributed processing capability providing terminal.

[0017]
[Mode for carrying out the invention]Drawing 1 is a figure showing the distributed processing mediating system of the 1 embodiment of this invention. The distributed processing mediating system of this invention in drawing 1 adds the distributed processing agency server 40 to the conventional distributed processing system. That is, the distributed processing mediating system of this invention comprises a distributed processing agency server, a distributed processing consignment terminal, and a distributed processing capability providing terminal.

[0018]The distributed processing agency server 40 receives the commission demand of distributed processing from the distributed processing consignment terminal 10, and has a role which mediates the distributed processing to the distributed processing capability providing terminal 30. The database about the distributed processing consignment terminal 10 and the distributed processing capability providing terminal 30 is formed, it communicates with a distributed processing capability providing terminal and a distributed processing consignment terminal to the distributed processing agency terminal 40, and distributed processing intermediation service is realized to it so that it may mention later.

[0019]The distributed processing consignment terminal 10 performs distributed processing commission processing. The distributed processing consignment terminal 10 communicates with

the distributed processing agency server 40, and performs negotiation about the contents of commission, transmission of the contents of commission, a receipt of a processing result, etc.

[0020]The distributed processing capability providing terminal 30 communicates with the distributed processing agency server 40, and performs negotiation about the contents of processing with which it is entrusted from the distributed processing consignment terminal 10, execution of processing, transmission of a result, etc.

[0021]<u>Drawing 2</u> is a figure showing composition of the distributed processing consignment terminal 10. After negotiating for processing commission conditions between the means of communication 11 and (2) distributed-processing agency server 40 which the distributed processing consignment terminal 10 communicates with the distributed processing agency server 40, and perform registration of processing commission, and a receipt of a processing result in <u>drawing 2</u>, The contents database 13 of distributed processing and the contents of (4) processings which record a distributed processing commission means 12 to transmit the contents of processing, the contents of processing which carry out (3) commission, negotiation conditions, etc., and negotiation conditions are registered into a database, and it has the user interface 14 which checks a history of processing. By the above-mentioned constituent means, the distributed processing consignment terminal 10 attaches the contents of distributed processing, required throughput, remuneration that can be paid, etc., and applies for commission to the distributed processing agency server 40. About information on a distributed processing consignment terminal itself [the contents of distributed processing, or], if it indicates to the distributed processing agency server 40, it will be enough and these information will not be disclosed by the distributed processing capability providing terminal 30.

[0022]<u>Drawing 3</u> is a figure showing the composition of the distributed processing capability providing terminal 30. In <u>drawing 3</u>, the distributed processing capability providing terminal 30, (1) Negotiation of whether it communicates with the distributed processing agency server 40, and is entrusted with distributed processing, The means of communication which performs reception of the contents of processing, transmission of a processing result, etc., the processing performing means which performs the contents of processing sent from (2) distributed-processing agency server 40, (3) Observe the Assessment on Search Report by Designated Searching Authority of the negotiation condition database which carries out record about the processing which recorded the negotiation conditions which the user set up or, with which it was entrusted in the past, and (4) distributed processing capability providing terminals, It communicates with other distributed processing capability providing terminals 30 via the throughput circumstantial judgment means and (5) distributed-processing agency server 40 which judge whether throughput can be provided, It has a user interface with them. [able for the means of communication 35 which realizes cooperation processing, and (6) users to perform setting out about offer of distributed processing capability, and to check record, accounting information, etc. about the distributed processing with which it was entrusted in the past, and to set up negotiation conditions]

[0023]By the above-mentioned constituent means, once the distributed processing capability providing terminal 30 registers a priori the contents of processing, conditions of remuneration, etc. which can be provided to service, after that, it is only accessing the distributed processing agency server 40, and it can be entrusted with the distributed processing from the distributed processing consignment terminal 10. The remuneration corresponding to the distributed processing provided from the distributed processing consignment terminal 10 depending on contractual coverage can be acquired. Since it examines by the distributed processing agency

server 40 about the contents of distributed processing, it is not necessary to worry about computer fault generating by a virus etc., etc. Since the registered personal information is held only in the distributed processing agency server 40 and is not transmitted to the distributed processing consignment terminal 10, the privacy of the distributed processing capability providing terminal 30 is protected. [0024]Drawing 4 is a figure showing the composition of the distributed processing agency server 40. In drawing 4, the distributed processing agency terminal 40 negotiates for and entrusts execution of processing to the (1) distributed processing capability providing terminal 30, The application from the means of communication 41 with the distributed processing capability providing terminal 30 which receives a processing result, and the (2) distributed processing consignment terminal 30 is accepted, The means of communication 42 which transmits a processing result, the position information on (3) networks and the capability level which can be provided, Reliability, accounting information, etc. of the distributed processing capability providing terminal database 43 which records reliability, the information on remuneration, etc., and the (4) distributed processing consignment terminal 10 to the distributed processing consignment terminal database 44 and the (5) distributed processing capability providing terminal 30 to record A liability, A code is used for the accounting management means 45 and (6) each communication which manage the amount of money for which a distributed processing consignment terminal is asked, Fabrication of an executed result and communication between the encoding means 46 and the (7) distributed processing capability providing terminal 30 which prevent the malfeasance to the distributed processing capability providing terminal 30 are mediated, Observe the situation of the signal-support means 47 between distributed processing capability providing terminals which makes cooperation distributed processing possible, and the (8) distributed processing capability providing terminal 30, when it is judged that required throughput cannot be provided, secure the substitute distributed processing capability providing terminal 30, and according to the situation of a distributed processing capability providing terminal, The contents of the processing sent from the re-allocation means 48 which guarantees the request of a distributed processing consignment terminal, and (9) distributed processing consignment terminals are checked, It checks that it is safe for a distributed processing capability providing terminal, Or after checking the credibility of a distributed processing consignment terminal based on the information of a public certificate authority, it has the contents evaluation methods 49 of processing which confirm whether the signature of the distributed processing consignment terminal 30 is corrected by the sent contents of processing (program).
[0025]Drawing 5 is an outline flow **** figure of the terminal registration in the distributed processing mediating system of this invention. Terminal registration of this invention is explained using drawing 5. The distributed processing consignment terminal 10 accesses the distributed processing agency server 40 (Step S110), and registers a distributed processing consignment terminal to the distributed processing agency server 40 (Step S120). On the other hand, the distributed processing capability providing terminal 30 accesses the distributed processing agency server 40 (Step S130), and registers a distributed processing capability providing terminal to the distributed processing agency server 40 (Step S140).
[0026]Drawing 6 is a figure showing the commission process flow in the distributed processing mediating system of this invention. The commission processing in the distributed processing of this invention is explained using drawing 6. The distributed processing consignment terminal 10 accesses the distributed processing agency server 40 (Step S201), and it is chosen whether distributed processing is entrusted at Step S202. the time of commission of distributed processing

being chosen -- (-- Step S202 -- the case of Yes --) -- the contents of distributed processing are transmitted to the distributed processing agency server 40 (Step S203), and the conditions and the contents of distributed processing of distributed processing commission are recorded (Step S204). next -- the case where it judges whether the distributed processing agency server 40 has distributed processing commission (Step S205), and there is distributed processing commission -- (-- Step S205 -- the case of Yes --) -- the contents of distributed processing are transmitted to the distributed processing capability providing terminal 30 (Step S206).

[0027]Drawing 7 is a figure showing a distributed processing execution flow in a distributed processing mediating system of this invention. Execution of processing in distributed processing of this invention is explained using drawing 7. It is chosen whether the distributed processing capability providing terminal 30 accesses the distributed processing agency server 40 (Step S301), and is entrusted with distributed processing at Step S302. a time of trust of distributed processing being chosen -- (-- Step S302 -- a case of Yes --). The contents of distributed processing are received from the distributed processing agency server 40 (Step S303), distributed processing is performed (Step S304), a processing result is transmitted to the distributed processing agency server 40 (Step S305), and conditions and the contents of distributed processing of distributed processing are recorded after that (Step S306). next -- a case where judged whether the distributed processing agency server 40 received a distributed processing result, and it is received whether it is a distributed processing result -- (-- Step S307 -- a case of Yes --) -- a processing result is transmitted to the distributed processing consignment terminal 10 (Step S308). Then, the distributed processing consignment terminal 10 unifies a distributed processing result received from the distributed processing agency server 40, and obtains one processing result (Step S309).

[0028]The example to which this invention was applied to the Internet Service Provider (ISP) is explained. In this ISP, a network connection charge can also be discounted to the user who chose whether it would become a processing distributed processing capability providing terminal when a user joined an Internet provider, and chose becoming a processing distributed processing capability providing terminal. An access charge can also be made into no charge to the user who provided throughput exceeding the fixed standard. This ISP can obtain the charge of service use from the distributed processing consignment terminal 10.

[0029]The example which applies this invention to the amusement machine installed in a game center is explained. As for the amusement machine which was installed in the game center and was always connected to the network, in the case of the opening, throughput is left. Such an amusement machine is introduced as a distributed processing capability providing terminal. Distributed processing capability can be provided automatically, remuneration can be acquired, and the income of a game center can be made to increase by introducing conventionally the amusement machine of the opening which only required the running cost as a distributed processing capability providing terminal.

[0030]
[Effect of the Invention]As explained above, according to this invention, the merit that profits can be obtained produces a distributed processing agency server by using distributed processing intermediation service by collecting a registration fee, a mediating fee, etc. from a distributed processing consignment terminal or a distributed processing capability providing terminal.

[0031]The merit that it can process without being able to collect a distributed processing capability providing terminal easily, and the contents of processing being known by the distributed processing capability providing terminal rather than a project participant collection

type [on the conventional Internet] produces a distributed processing consignment terminal. It becomes unnecessary to hold the high computer of throughput oneself, and the cost of a maintenance, etc. can be reduced.

[0032]Conventionally, the distributed processing capability providing terminal can take a place at the time of disuse, and can utilize the computer which only consumed electric power as an "automatic vending machine" which sells throughput by the piece automatically. Since a distributed processing agency server guarantees the safety of the contents of processing, the merit of being able to provide dispersion power power arises in comfort.

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[Translation done.]

CLAIMS

[Claim(s)]
[Claim 1]At least one distributed processing consignment terminal which entrusts distributed processing, and at least one distributed processing capability providing terminal in which information processing ability is left, A distributed processing mediating system, wherein it has a distributed processing agency server which performs intermediation service via a network among these and said distributed processing agency server mediates surplus throughput which a distributed processing capability providing terminal provides to a distributed processing consignment terminal.

[Claim 2]The distributed processing mediating system according to claim 1, wherein said distributed processing agency server holds anonymity between a distributed processing consignment terminal and a distributed processing capability providing terminal.

[Claim 3]The distributed processing mediating system according to claim 1, wherein said distributed processing agency server holds confidentiality between a distributed processing consignment terminal and a distributed processing capability providing terminal.

[Claim 4]The distributed processing mediating system according to claim 1, wherein said distributed processing capability providing terminals are computers always connected to a wide area network, such as a personal computer and a game machine.

[Claim 5]The distributed processing mediating system according to claim 1, wherein said distributed processing consignment terminal performs distributed processing using two or more distributed processing capability providing terminals.

[Claim 6]The distributed processing mediating system according to claim 5, wherein said distributed processing consignment terminal adjusts the number of a processing distributed processing capability providing terminal to be used according to a state of a distributed processing capability providing terminal.

[Claim 7]A distributed processing mediating method which is provided with the following and characterized by said distributed processing agency server mediating surplus throughput which a distributed processing capability providing terminal provides to a distributed processing consignment terminal.

A distributed processing consignment terminal which entrusts distributed processing.

A distributed processing capability providing terminal in which information processing ability is left.

A distributed processing agency server which performs intermediation service via a network among these.

[Claim 8]The distributed processing mediating method according to claim 7, wherein said distributed processing agency server holds anonymity between a distributed processing consignment terminal and a distributed processing capability providing terminal.

[Claim 9]The distributed processing mediating method according to claim 7, wherein said distributed processing agency server holds confidentiality between a distributed processing consignment terminal and a distributed processing capability providing terminal.

[Claim 10]The distributed processing mediating method according to claim 7, wherein said distributed processing capability providing terminals are computers always connected to a wide area network, such as a personal computer and a game machine.

[Claim 11]The distributed processing mediating method according to claim 7, wherein said distributed processing consignment terminal performs distributed processing using two or more distributed processing capability providing terminals.

[Claim 12]The distributed processing mediating method according to claim 11, wherein said distributed processing consignment terminal adjusts the number of a processing distributed processing capability providing terminal to be used according to a state of a distributed processing capability providing terminal.

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